Fig.1



100

102

4
車速
センサ

3 トルク
センサ

Ts

Vs

9

ECU 5

バッテリ

8

102

106

106

108

108

モータ

104

61

6

62

3: TORQUE SENSOR

4: VEHICLE SPEED SENSOR

6: MOTOR

8: BATTERY

# Fig.2

Fig. 3



3: TORQUE SENSOR
4: VEHICLE SPEED SENSOR
6: BRUSHLESS MOTOR
10: MICROCOMPUTER
62: POSITION DETECTING SENSOR
112: PHASE COMPENSATOR
114: TARGET CURRENT CALCULATING UNIT (ASSIST TABLE)
116: INSTRUCTION CURRENT DIRECTION SPECIFYING UNIT
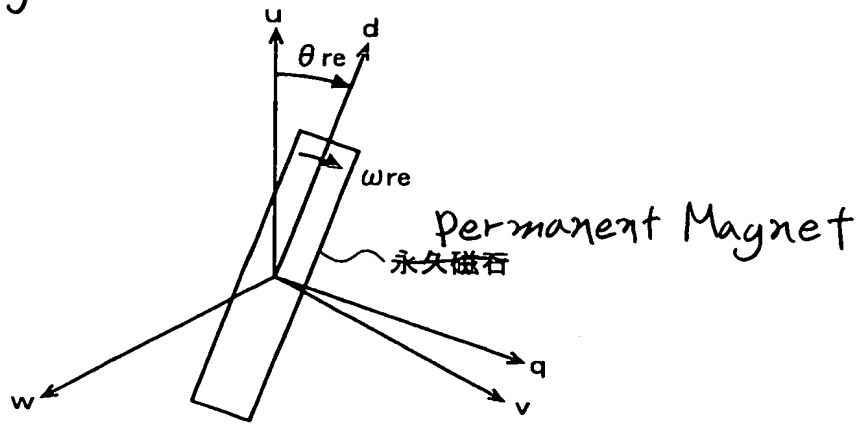
152: MOTOR DRIVING CIRCUIT
154: V-PHASE CURRENT DETECTOR
156: U-PHASE CURRENT DETECTOR
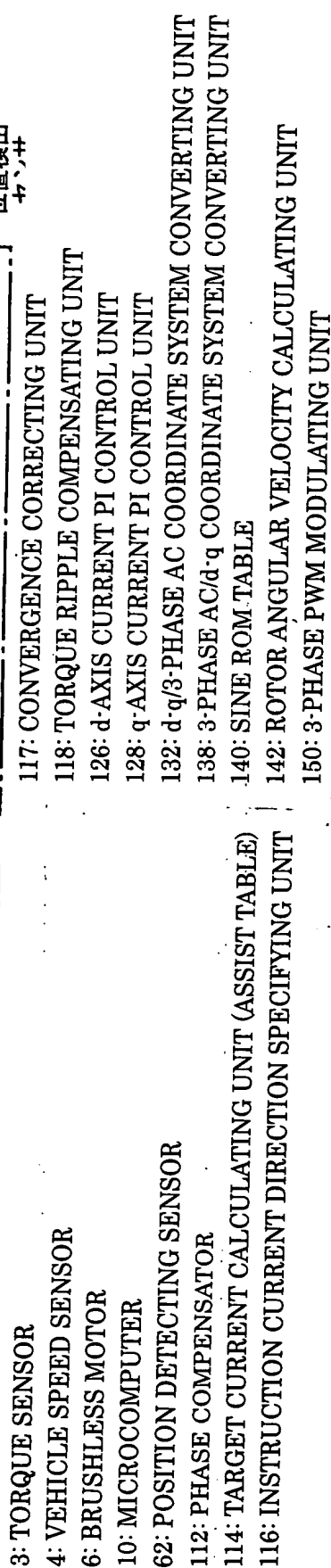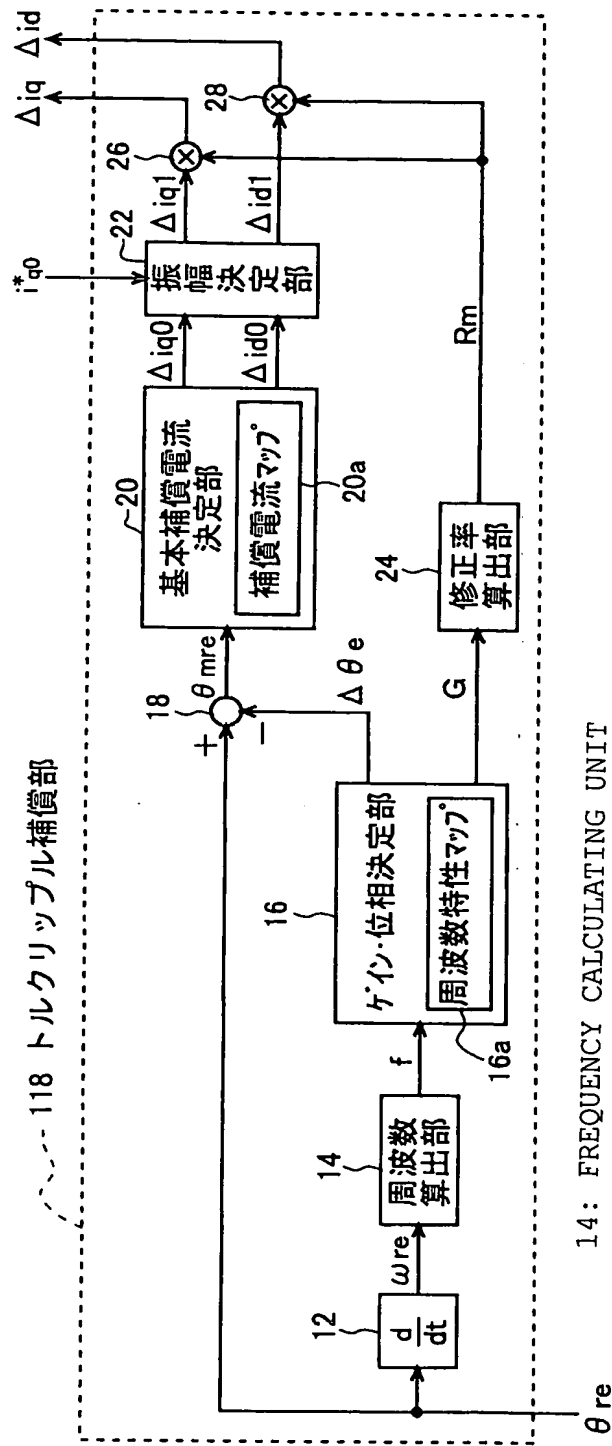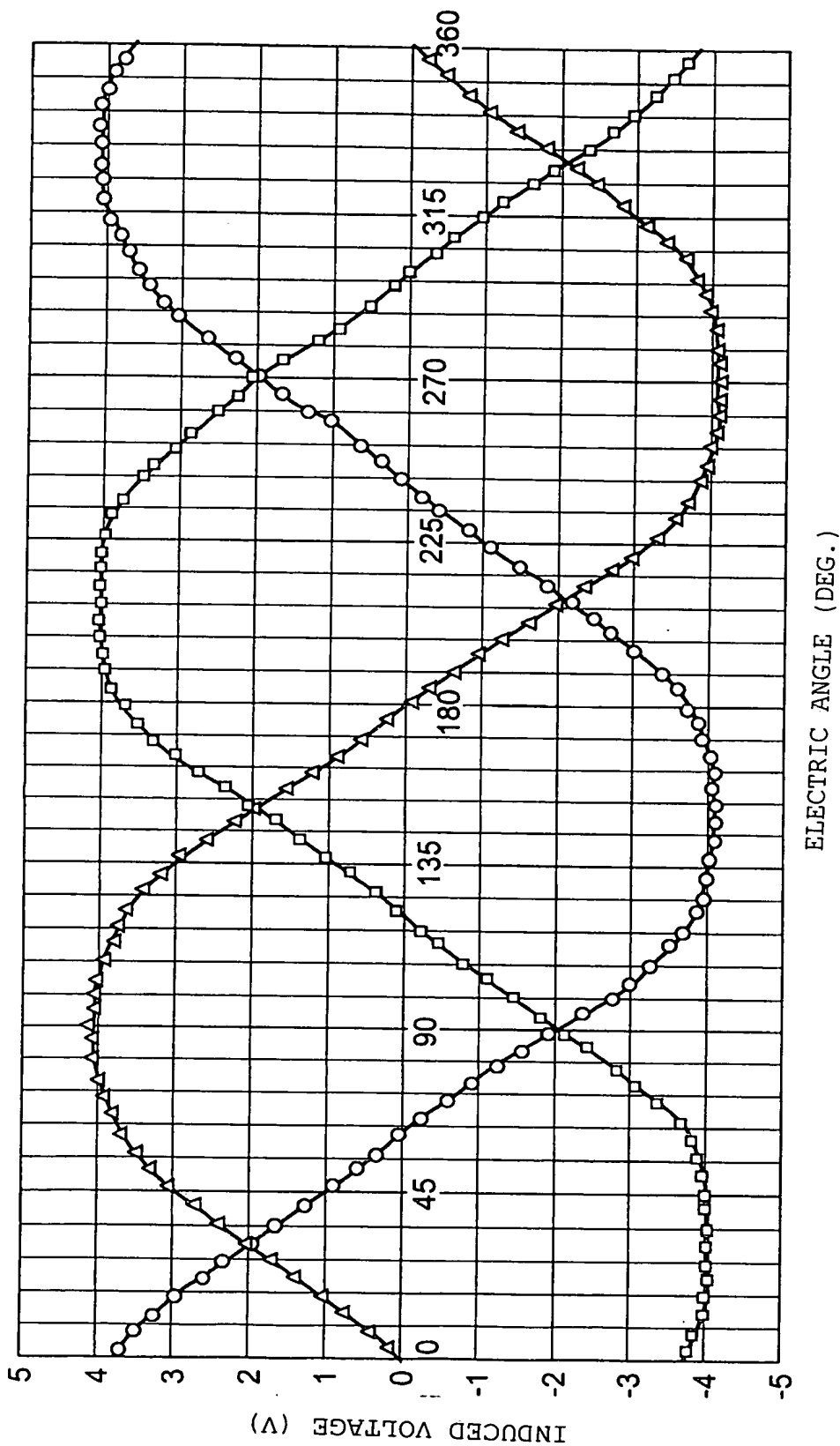162: ROTOR ANGLE POSITION DETECTOR
200: CURRENT CONTROL UNIT

117: CONVERGENCE CORRECTING UNIT
118: TORQUE RIPPLE COMPENSATING UNIT
126: d-AXIS CURRENT PI CONTROL UNIT
128: q-AXIS CURRENT PI CONTROL UNIT
132: d-q/3-PHASE AC COORDINATE SYSTEM CONVERTING UNIT
138: 3-PHASE AC/d-q COORDINATE SYSTEM CONVERTING UNIT
140: SINE ROM TABLE
142: ROTOR ANGULAR VELOCITY CALCULATING UNIT
150: 3-PHASE PWM MODULATING UNIT

Fig. 4

14: FREQUENCY CALCULATING UNIT

16: GAIN/PHASE DETERMINING UNIT

16a: FREQUENCY CHARACTERISTIC MAP

20: BASIC COMPENSATION CURRENT DETERMINING UNIT

20a: COMPENSATION CURRENT MAP

22: AMPLITUDE DETERMINING UNIT

24: CORRECTION FACTOR CALCULATING UNIT

118: TORQUE RIPPLE COMPENSATING UNIT

Fig.5

INDUCED VOLTAGE (V)

ELECTRIC ANGLE (DEG.)

△ : U-PHASE INDUCED VOLTAGE
□ : V-PHASE INDUCED VOLTAGE
○ : W-PHASE INDUCED VOLTAGE

Fig.6



ELECTRIC ANGLE (DEG.)

COMPENSATION CURRENT (A)

Δiq0

Δid0

Fig. 7



PHASE (DEG.)

PHASE

GAIN

FREQUENCY (Hz)

GAIN (dB)

Fig.8


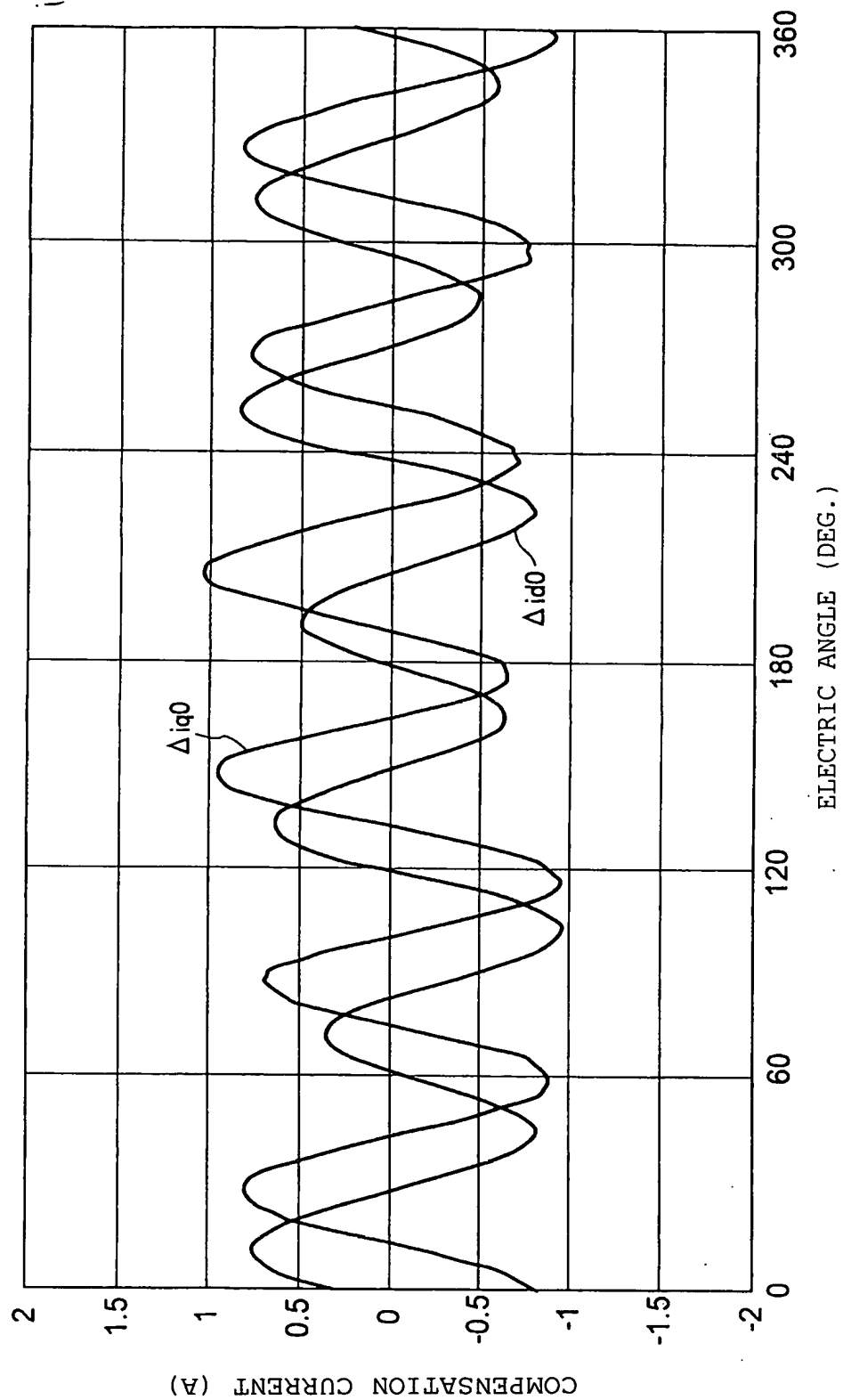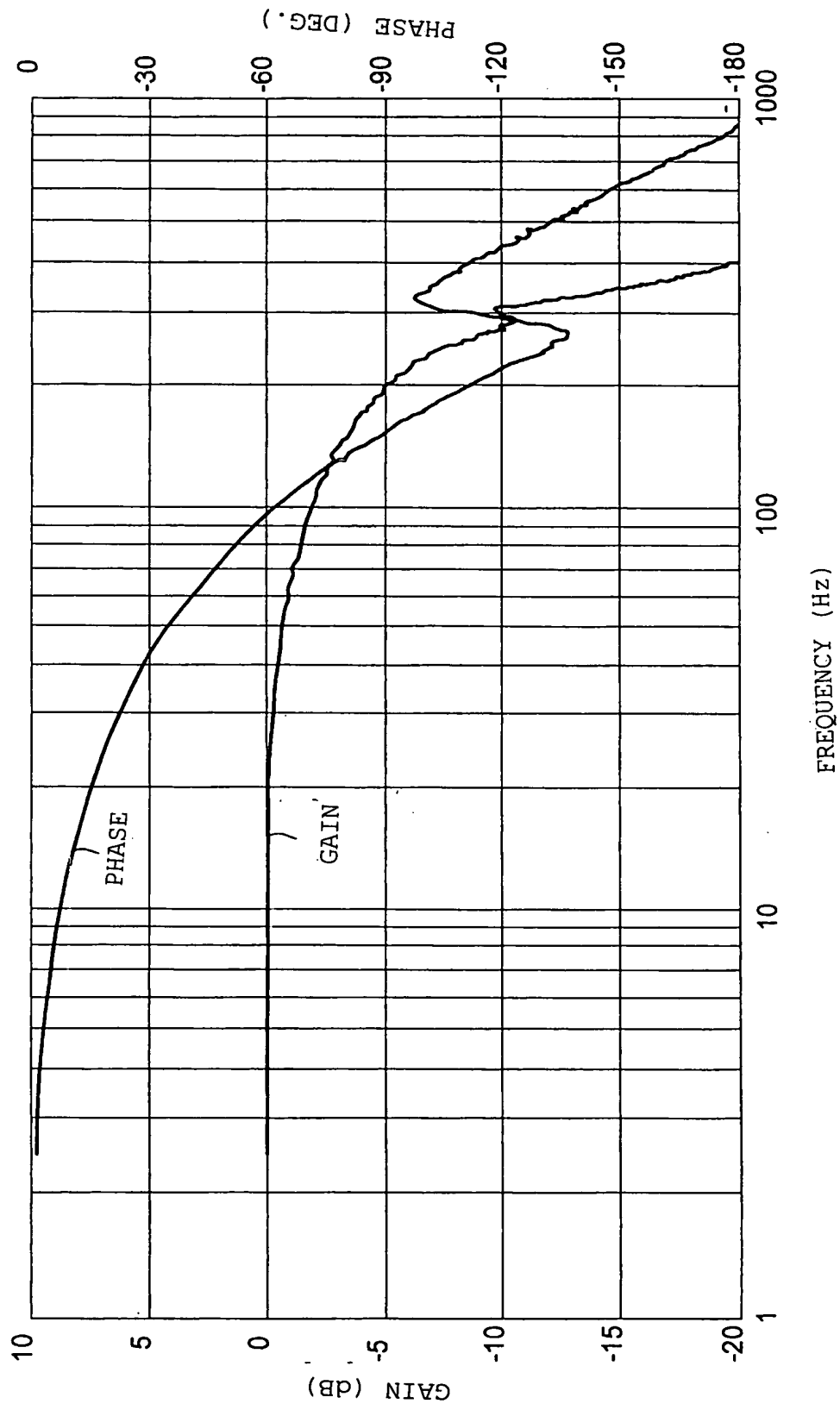
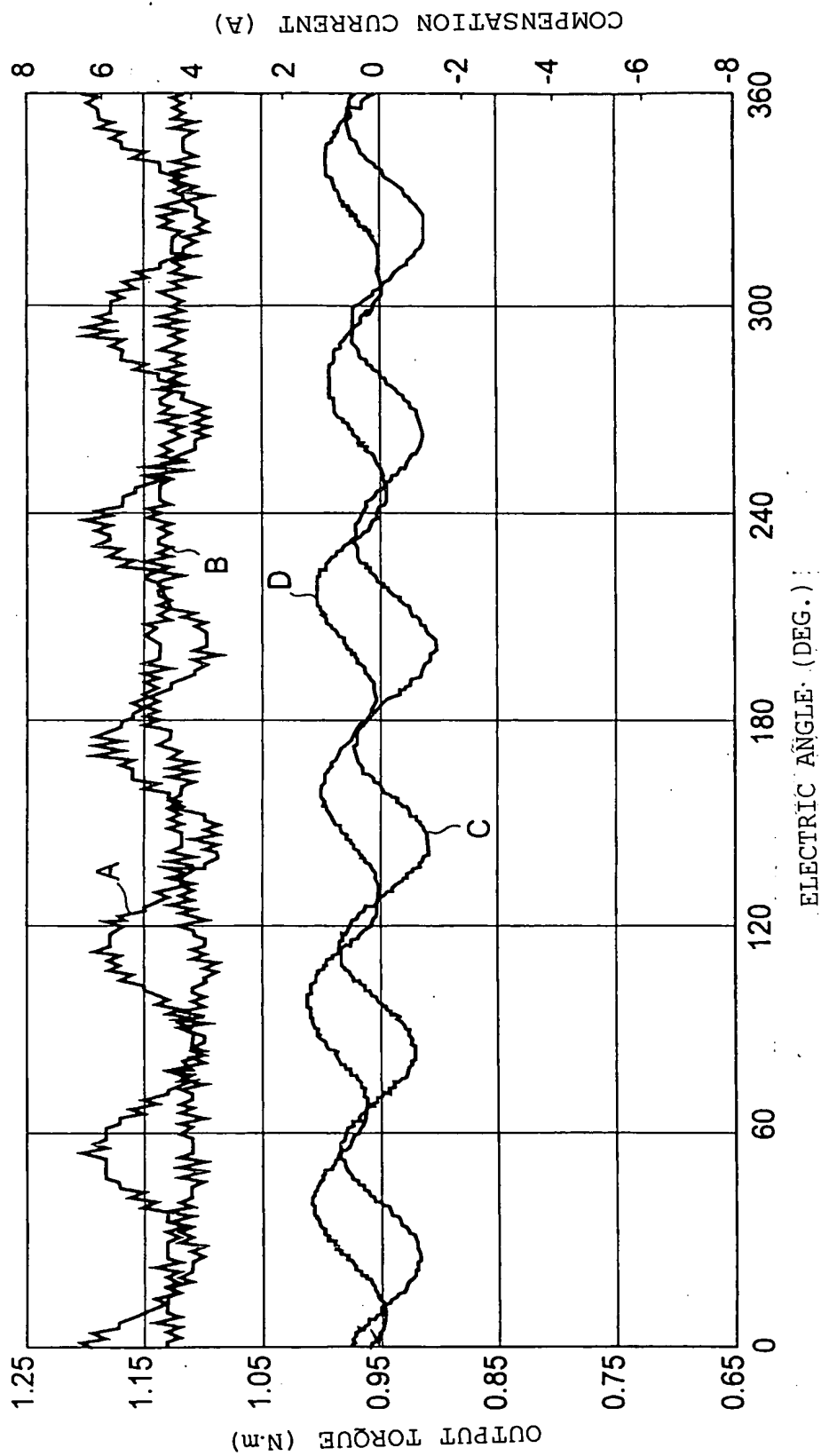ELECTRIC ANGLE (DEG.)

OUTPUT TORQUE (N.m)
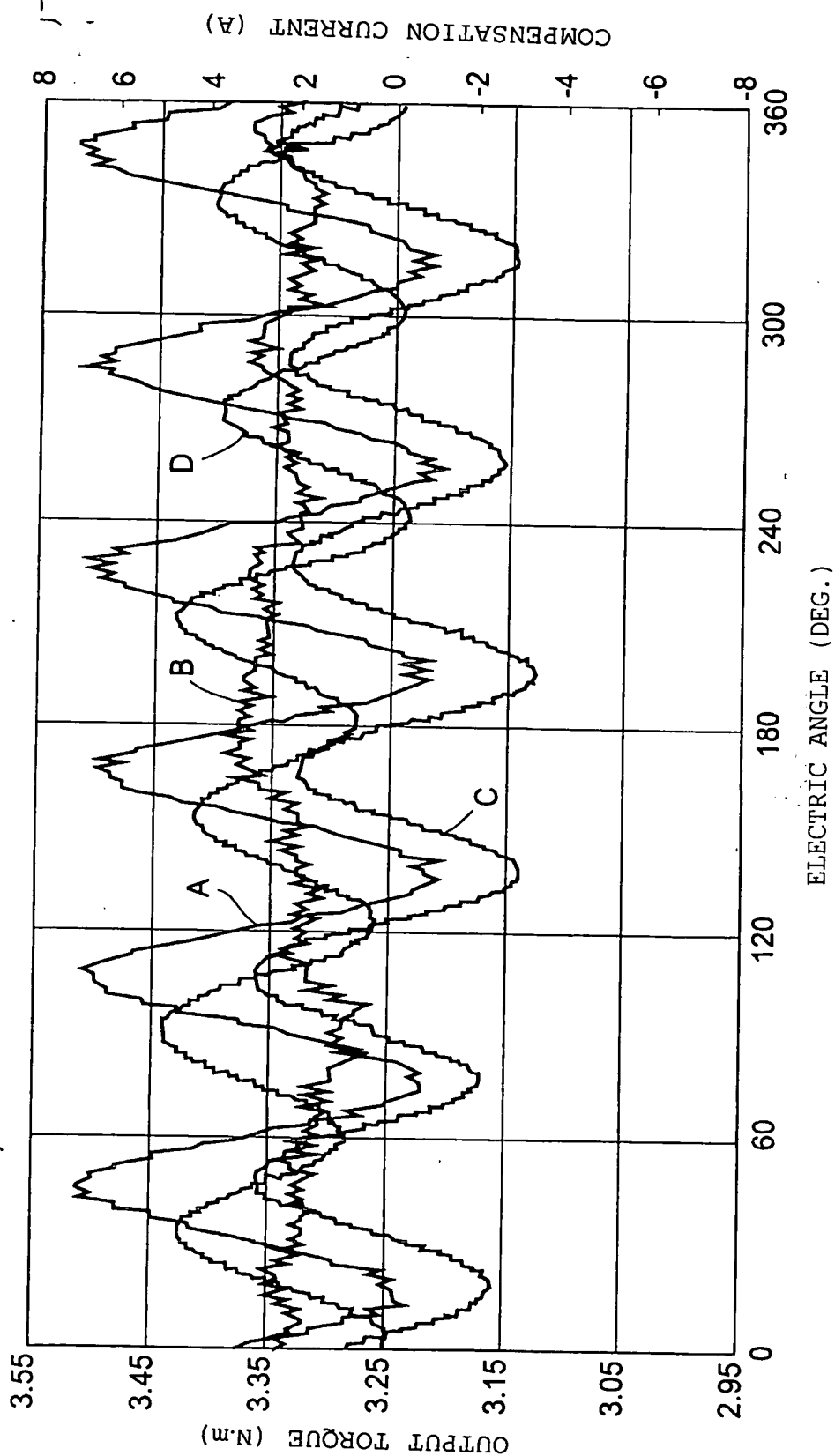
COMPENSATION CURRENT (A)

A: OUTPUT TORQUE (WITHOUT COMPENSATION; SET VALUE: +1 N.m)

B: OUTPUT TORQUE (WITH COMPENSATION; SET VALUE: +1 N.m)

C: q-AXIS COMPENSATION CURRENT

D: d-AXIS COMPENSATION CURRENT

# Fig.9



COMPENSATION CURRENT (A)

ELECTRIC ANGLE (DEG.)

OUTPUT TORQUE (N.m)

A OUTPUT TORQUE (WITHOUT COMPENSATION; SET VALUE: +3 N.m)

B OUTPUT TORQUE (WITH COMPENSATION; SET VALUE: +3 N.m)

C q-AXIS COMPENSATION CURRENT

D d-AXIS COMPENSATION CURRENT